IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	) Group Art Unit: 2185
	)
MORROW, Michael	)
	) Examiner: KIM, Hong Chong
Application No.: 10/788,725	)
	) Notice of Allowance Dated: May 1, 2007
Filed: February 26, 2004	)
	) **Mail Stop Issue Fee**
For: LOW POWER SEMI-TRACE	)
INSTRUCTION CACHE	) Confirmation No.: 6814

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

PETITION TO WITHDRAW ERRONEOUS HOLDING OF ABANDONMENT

Applicant respectfully requests reconsideration and withdrawal under 37 C.F.R.

§§ 1.181 and 1.10(e) of the holding of abandonment in the above-identified patent

application on the basis that there is no abandonment in fact. *See* M.P.E.P.

§§ 711.03(c) and 1002.02(c). **No fee is required for this Petition.**

Applicant received a Notice of Abandonment mailed September 17, 2007

("Notice"). The Notice states that applicant failed to timely file a proper reply to the

Office letter (a Notice of Allowability) mailed on May 1, 2007. That is incorrect.

Applicant timely and electronically filed a reply on July 31, 2007, a fact that is evident

from PAIR and therefore supported by the USPTO's own records. This Petition is being

timely filed within two months of the mail date of the Notice of Abandonment.

The supporting facts are as follows. On May 1, 2007, the Office mailed a Notice of Allowance and Fees Due, as well as a Notice of Allowability. In the Notice of Allowability, the Examiner indicated that all pending claims were allowed, but that "replacement drawings" needed to be submitted that included changes in the attached Examiner's Amendment. The Notice of Allowance indicated that payment of the issue fee and correction to the drawings was due by August 1, 2007. On July 31, 2007, the Applicant **timely** filed the issue fee, as well as an Amendment After Allowance amending the drawings in the manner suggested by the Examiner.

Applicant contends that there is disagreement between Applicant and the Examiner as to the sufficiency of the reply and, on that basis, this petition to withdraw holding of abandonment in accordance with M.P.E.P. § 711.03(c) is proper. On August 17, 2007, the Office mailed a Response to Rule 312 Communication ("Response"). In the Response, the Examiner indicated that the Amendment filed on July 31, 2007, was entered in part, but that "the amendments to the drawing and the specification filed on 7/31/07 contain subject matter which was not described in the specification at the time the application was filed."

Applicant respectfully disagrees. As required by the Examiner, Applicant amended Figure 4 to show new steps at reference numbers 430 (Instruction fetched from Icache AND is a jump, branch, call or return instruction); 431 (Index TCache portion with address of current instruction); and 432 (Insert current instruction into semi-trace cache 20 or line buffer). Contrary to the Examiner's contention in the Response, the material in the added boxes (430 and 431) is not new matter, but was present in

claims 1, 6, and 7, as originally filed with the application on the date of filing. Claim 7 of the original application as filed claimed the system of claim 6 "wherein the TCache portion is further indexed when the processor takes a jump, a call or a return." Original claim 6 recites 'a line in the TCache portion is indexed when the processor takes a branch."

Applicant further submits that the figures, and in particular the combination of Figs. 2 and 4, show filling an array with ICache lines mixed with TCache lines where an allocated proportion of ICache cache lines to TCache cache lines is dynamically changing with time and neither the ICache portion nor the TCache portion are looked up when the TCache portion is supplying instructions; and using an instruction indexing logic to select some instructions, wherein the indexing logic is not used for either the ICache portion or TCache portion when the TCache portion is supplying instructions; and the TCache portion is indexed only when a processor executes one of: a branch instruction, a jump instruction, a call instruction, and a return instruction, as required by the Examiner.

Applicant's representative, Brian Mangum, twice spoke with Examiner Kim to discuss how Applicant might respond to the Response to 312 Communication. On September 13, 2007, Mr. Mangum called to schedule an interview and, thereafter, faxed the attached letter showing support for the amendments that had been made to Figure 4. During an interview the next day, on September 14, 2007, Applicant again expressed disagreement with the need to further amend Figure 4 for the reasons mentioned in the letter. In response, the Examiner indicated during the interview that, in his opinion, the

Applicant could cure any objections to the drawing by submitting a replacement Figure 4, in which boxes 430 and 431 where moved to follow box 404. Mr. Mangum indicated that we would consider such an amendment if doing so would allow the application to pass to issue. The Examiner did not indicate at any time that Applicant could not file the replacement drawing. In fact, the Examiner indicated that, if we were to file one, he would look at it when he returned from scheduled vacation the following week. Instead, on Monday, September 17, 2007, the Office mailed a Notice of Abandonment.

Applicant has reviewed the specification and submits that Replacement Figure 4 as filed on July 31, 2007, is accurate and should have been entered. Applicant submits that the Notice of Abandonment mailed September 17, 2007, is therefore improper and should be withdrawn at least for the reason that Applicant's response on July 31, 2007 constituted a complete reply to the Examiner's objections to Figure 4.

Applicant also submits that the Notice of Abandonment was improper for the additional basis that it was premature. According to 37 C.F.R. § 1.135, when reply by the applicant is "substantially a complete reply to the non-final Office action, but consideration of some matter or compliance with some requirement has been inadvertently omitted, the applicant may be given a new time period for reply under § 1.134 to supply the omission." In the telephone interview on September 14, 2007, the Examiner indicated the objection could be cured by submitting a replacement drawing with the boxes in a different order. However, the Response to 312 Communication mailed August 17, 2007, did not set a time period for reply and instead the Notice of Abandonment was prematurely mailed.
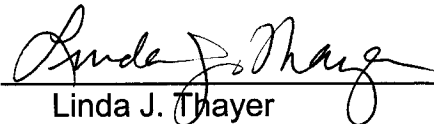
In summary, Applicant requests that the Office withdraw the abandonment of the application and enter the Replacement Figure 4 as filed on July 31, 2007. In the alternative, if the Office maintains its position that Figure 4 must be further amended, Applicant requests that the Office withdraw the abandonment of the application as premature, and set a time period for Applicant to correct the drawing .

Please grant any extensions of time required to enter this response and charge any additional required fees to Deposit Account 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, L.L.P.

Date: October 30, 2007   By: _____
                                     Linda J. Thayer
                                     Reg. No. 45,681
                                     Direct: (650) 849-6621

Attachment: Fax dated September 13, 2007 to Examiner Kim (4 pages)

September 13, 2007

Examiner Hong Kim   **VIA FACSIMILE ONLY**
United States Patent and Trademark Office
phone: 571-272-4181
fax: 571-273-4181

Application No. 10/788,725–Support for amendments

Dear Examiner Hong Kim:

During our telephone conference today, you asked me to send a fax to you outlining the support for the amendments to the specification and drawings proposed by Applicant in the Amendment after Allowance filed July 31, 2007.

For your reference, I have included a marked-up version of paragraph [0018] below, showing the proposed amendments:

[0018] FIG. 3 is a diagram that illustrates reading from the semi-trace cache and FIG. 4 is a flow diagram 400 that shows functional operation of semi-trace cache 20. As shown in FIG. 4, block 402 shows that an instruction is fetched from the current line of semi-trace cache 20. <u>At block 430, a determination is made whether the instruction is fetched from ICache and is a jump, branch, call, or return instruction. If the conditions of block 430 are met, the TCache portion is indexed with the address of the current instruction at block 431.</u> The~~That~~ fetched instruction is executed by processor 12 as indicated by block 404. <u>At block 432, the current instruction is inserted into semi-trace cache 20 or a line buffer as discussed above.</u> In block 406 a determination is made as to whether the executed instruction causes processor 12 to take a change in the flow-of-control. Different actions may be taken depending on whether processor 12 is running from the TCache portion or the ICache portion. For instance, when running from the TCache portion a change in flow-of-control may occur when a branch is mispredicted or an end of the line is reached. If there is no change in flow, then in block 408, a check is made to determine if the last instruction in the current line was fetched and executed. If the last instruction was not fetched then control is looped back to block 402.

The subject matter of the proposed amendments to paragraph [0018] are found in paragraph [0015] of the as-filed specification, which is copied below with the supporting passages appearing in bold:

Examiner Hong Kim
September 13, 2007
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[0015] Again, the TCache portion stores instructions in program order rather than in address order and contains a complete line of usable instructions (in the case of a correct prediction). Thus, the TCache portion is filled with traces gleaned either from the actual stream of retired instructions, or instructions predicted before execution. **Note that the TCache portion is only indexed when processor 12 executes certain instructions such as, for example, a branch, a jump, a call, a return, etc.** Accordingly, TCache line 210 may contain non-contiguous instructions from an instruction stream having, for example, branches that include instructions that start at a branch target and potentially continue through other taken branches. Consequently, a plurality of instructions including instructions crossing a predicted branch boundary may be fetched from the TCache portion of semi-trace cache 20 with only one address/access. **Traces may be built using a line buffer (or fill-unit) that records instructions as they are retired from the execution core and the instructions may be inserted into semi-trace cache 20 when a trace end-condition is encountered.**

In the proposed amendments to figure 4, steps 430, 431, and 432 are added to the flow chart. Steps 430 and 431 and the corresponding amendment to paragraph [0018] are supported at least by the first highlighted sentence in paragraph [0015] above. Step 432 and its corresponding amendment in paragraph [0018] are supported at least by the second highlighted sentence above.

I understand that you will be out of town next week, but will be available tomorrow, September 14. I would appreciate a few minutes of your time to discuss the proposed amendments by telephone. You may reach me at 650-849-6661 or on my cellular phone at 512-659-1775. I look forward to hearing from you.

Very truly yours,

Brian T. Mangum